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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MCKENNA LONG & ALDRIDGE LLP  
1900 K STREET, NW  
WASHINGTON, DC 20006

EXAMINER
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DHARIA, PRABODH M

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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12/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/668,606

Applicant(s)

PARK ET AL.

Examiner

Prabodh M. Dharia

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 17 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9,11-16 and 18 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                                  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____   |

1. **Status:** Please all replies and correspondence should be addressed to examiner's new art unit 2629. Receipt is acknowledged of papers submitted on 10-26-2007 under amendments and request for reconsideration, which have been placed of record in the file. Claims 1-18 are pending in this action.

***Response to Amendment***

2. The amendment filed 10-26-2007 does not introduce any new matter into the disclosure. The added material, which is supported by the original disclosure.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,2,4,5,7,11,12,14,16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (US 2002/0039089 A1) in view of Murade (US 2001/0022572 A1).

Regarding Claim 1, Lim teaches a liquid crystal display device (page 1, paragraph 5, Line 1, Lines 3-5, paragraphs 13,16, page 3, paragraph 39), comprising: an image display part formed on a first substrate where data lines and gate lines are vertically and horizontally arranged, respectively, to cross each other (page 1, paragraph 5, Line 3-5 paragraph 13, Lines 1-5); a plurality of gate tape carrier packages having a gate driving integrated circuit to drive the gate

lines (page 1, paragraph 13, Lines 6-9, paragraph 16, Lines 3-5); a plurality of data tape carrier packages having a data driving integrated circuit to drive the data lines (page 1, paragraph 13, Lines 6-9, paragraph 16, Lines 1,2); a first control signal line formed together with the conductive lines to supply a first control signal to the gate driving integrated circuits (page 1, paragraph 16, Line1-16, page 2, paragraph 36, paragraph 34, Lines 8,9, page 4, claim 12, figure 3, disclosing controller and control lines received from controller formed on the TCP controlling gate driving IC mounted on TCP, please also see patent number 7,145,539 of the PGPUB document US 2002/0039089 A1, Col. # 1, Line 62 to Col. 2, Line 67, Col. 4, lines 1-65 ) so that the gate lines of the image display part may be sequentially driven from the first one to the last one (page 1, paragraph 16, page 2, paragraph 36, paragraph 34, Lines 8,9, page 4, claim 1, Lines 1-9, claims 7,12 please also see patent number 7,145,539 of the PGPUB document US 2002/0039089 A1, Col. # 1, Line 62 to Col. 2, Line 67, Col. 3, Lines 6-36, Col. 4, Lines 1-65); a second control signal line formed together with the conductive lines to supply a second control signal to the gate driving integrated circuits so that the gate lines of the image display part may be sequentially driven from the last one to the first one (page 3, paragraph 39, Lines 4-10, page 4, claims 1,12); and a first controller to supply the first and second control signals to the first and second control signal lines (page 1, paragraph 16, page 3, paragraph 39, Lines 4-10, page 4, claims 1,12).

However, Lim fails to disclose a plurality of conductive lines formed at an outer side of the image display part of the first substrate to supply gate driving signals to the gate driving integrated circuits to be supplied to the gate lines.

However, Murade discloses a plurality of conductive lines formed at an outer side of the image display part (please see figures 1,2,4 and 5, page 21, claim 23, page 7, paragraphs 54-57, page 17, paragraph 159) of the first substrate (TFT substrate is first substrate which also has scanning lines page 8, paragraph 85) to supply gates driving signals (page 1, paragraph 3, Lines 26-29,10-20) to the gate driving integrated circuits to be supplied to the gate lines (page 1, paragraph 3, Lines 26-29,10-20).

The reason to combine to be able to separate all the signals coming to display and be able to shield all the signals interfered from high speed clock, high frequency noise as all the signals enter on the board at the outer side of the board.

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Murade in the teaching of Lim to be able to have a display where all the signals entering the display substrate from outside are shielded from high frequency noise to realize high precision multi level gray scale display (page 1, paragraph 5).

Regarding Claim 2, Lim teaches the first control signal line is to transmit a gate start pulse (GSP) (page 1, paragraph 16).

Regarding Claim 4, Lim teaches the first controller is to transmit a third control signal to the first data driving IC and the last data driving IC to sequentially apply image information from the first data driving IC to the last data driving IC or from the last data driving IC to the first data

driving IC (page 1, paragraph 16, page 3, paragraph 39, Lines 4-10).

Regarding Claim 5, Lim teaches a method of driving a liquid crystal display device (page 2, paragraph 33), comprising: providing a plurality of gate tape carrier packages having a gate driving integrated circuit for driving a plurality of gate lines (page 2, paragraph 34, Lines 7-9); providing a plurality of data tape carrier packages having a data driving integrated circuit for driving a plurality of data lines (page 2, paragraph Lines 4-6); and supplying a first control signal to the gate driving integrated circuits using a first control line so that the gate lines of the image display part may be sequentially driven from the last one to the first one (page 3, Paragraph 39, Lines 4-10, page 1, paragraph 16, Line 1-16, page 2, paragraph 36, paragraph 34, Lines 8,9, page 4, claim 12, figure 3, disclosing controller and control lines received from controller formed on the TCP controlling gate driving IC mounted on TCP, please also see patent number 7,145,539 of the PGPUB document US 2002/0039089 A1, Col. # 1, Line 62 to Col. 2, Line 67, Col. 4, lines 1-65).

However, Lim fails to disclose a plurality of conductive lines formed at an outer side of the image display part of the first substrate to supply gate driving signals to the gate driving integrated circuits to be supplied to the gate lines.

However, Murade discloses a plurality of conductive lines formed at an outer side of the image display part (please see figures 1,2,4 and 5, page 21, claim 23, page 7, paragraphs 54-57, page 17, paragraph 159) of the first substrate (TFT substrate is first substrate which also has scanning lines page 8, paragraph 85) to supply gates driving signals (page 1, paragraph 3, Lines

26-29,10-20) to the gate driving integrated circuits to be supplied to the gate lines (page 1, paragraph 3, Lines 26-29,10-20).

The reason to combine to be able to separate all the signals coming to display and be able to shield all the signals interfered from high speed clock, high frequency noise as all the signals enter on the board at the outer side of the board.

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Murade in the teaching of Lim to be able to have a display where all the signals entering the display substrate from outside are shielded from high frequency noise to realize high precision multi level gray scale display (page 1, paragraph 5).

Regarding Claim 7, Lim teaches supplying a second control signal to the data driving integrated circuits using a second control line so that the data lines of the image display part may be sequentially driven from the last one to the first one (page 3, paragraph 39, Lines 4-10).

Regarding Claim 9, Lim teaches the first control signal line transmits a gate start pulse (GSP) (page 2, paragraph 36, Lines 1-4).

Regarding Claim 11, Lim teaches the first controller transmits a third control signal to the first data driving IC and the last data driving IC to sequentially apply image information from the first data driving IC to the last data driving IC or from the last data driving IC to the first data driving IC (figure 3, page 2, paragraphs 34-36).

Regarding Claim 12, Lim teaches a method of driving a liquid crystal display device (page 2, paragraph 33, page 1, paragraph 5, Line 1, Lines 3-5, paragraphs 13,16, page 3, paragraph 39), comprising: an image display part formed on a first substrate where data lines and gate lines are vertically and horizontally arranged, respectively, to cross each other (page 1, paragraph 5, Line 3-5 paragraph 13, Lines 1-5); a plurality of gate tape carrier packages having a gate driving integrated circuit for driving the gate lines (page 1, paragraph 13, Lines 6-9, paragraph 16, Lines 3-5); a plurality of data tape carrier packages having a data driving integrated circuit for driving the data lines (page 1, paragraph 13, Lines 6-9, paragraph 16, Lines 1,2); a plurality of conductive lines for supplying gate driving signals to the gate driving integrated circuits to be supplied to the gate lines (page 1, paragraph 13, Lines 6-10, paragraphs 8,10); a first control signal line formed together with the conductive lines for supplying a first control signal to the gate driving integrated circuits so that the gate lines of the image display part may be sequentially driven from the first one to the last one (page 1, paragraph 16, page 2, paragraph 36, paragraph 34, Lines 8,9, page 4, claim 12, page 1, paragraph 16, Line1-16, page 2, paragraph 36, paragraph 34, Lines 8,9, page 4, claim 12; figure 3, disclosing controller and control lines received from controller formed on the TCP controlling gate driving IC mounted on TCP, please also see patent number 7,145,539 of the PGPUB document US 2002/0039089 A1, Col. # 1 Line 62 to Col. 2, Line 67, Col. 4, lines 1-65); a second control signal line formed together with the conductive lines for supplying a second control signal to the gate driving integrated circuits so that the gate lines of the image display part may be sequentially driven from the last one to the first one (page 3, paragraph 39, Lines 4-10, page 1, paragraph 16, Line1-16, page 2, paragraph 36, paragraph 34, Lines 8,9, page 4, claim 12, figure 3, disclosing



controller and control lines received from controller formed on the TCP controlling gate driving IC mounted on TCP, please also see patent number 7,145,539 of the PGPUB document US 2002/0039089 A1, Col. # 1 Line 62 to Col. 2, Line 67, Col. 4, Lines 1-65, Col. 3, Lines 6-36); and a first controller for supplying the first and second control signals to the first and second control signal lines (page 1, paragraph 16, page 3, paragraph 39, Lines 4-10).

However, Lim fails to disclose a plurality of conductive lines formed at an outer side of the image display part of the first substrate to supply gate driving signals to the gate driving integrated circuits to be supplied to the gate lines.

However, Murade discloses a plurality of conductive lines formed at an outer side of the image display part (please see figures 1,2,4 and 5, page 21, claim 23, page 7, paragraphs 54-57, page 17, paragraph 159) of the first substrate (TFT substrate is first substrate which also has scanning lines page 8, paragraph 85) to supply gates driving signals (page 1, paragraph 3, Lines 26-29,10-20) to the gate driving integrated circuits to be supplied to the gate lines (page 1, paragraph 3, Lines 26-29,10-20).

The reason to combine to be able to separate all the signals coming to display and be able to shield all the signals interfered from high speed clock, high frequency noise as all the signals enter on the board at the outer side of the board.

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Murade in the teaching of Lim to be able to have a display where all the signals entering the display substrate from outside are shielded from high frequency noise to realize high precision multi level gray scale display (page 1, paragraph 5).

Regarding Claim 14, Lim teaches supplying a second control signal to the data driving integrated circuits using a second control line so that the data lines of the image display part may be sequentially driven from the last one to the first one (page 3, paragraph 39, Lines 4-10).

Regarding Claim 16, Lim teaches the first control signal line transmits a gate start pulse (GSP) (page 2, paragraph 36, Lines 1-4).

Regarding Claim 18, Lim teaches the first controller transmits a third control signal to the first data driving IC and the last data driving IC to sequentially apply image information from the first data driving IC to the last data driving IC or from the last data driving IC to the first data driving IC (figure 3, page 2, paragraphs 34-36).

5. Claims 6,8,13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim (US 2002/0039089 A1) in view of Murade (US 2001/0022572 A1), as applied to claims 1, 2, 4, 5, 7, 11, 12, 14, 16 and 18 above, and further in view of Aoki (US 5,966,115).

Regarding Claim 6, Lim teaches the gate lines of the image display part may be sequentially driven from the last one to the first one (page 3, paragraph 39, Lines 4-10); an image produced by supplying the first control signal (page 3, paragraph 39, Lines 13-18).

However, Lim modified by Murade fails to specifically recite or disclosed an image produced by supplying the first control signal is inverted.

However, Aoki teaches an image produced by supplying the first control signal is inverted (Col. 1, Line 65 to Col. 2, Line 6).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Aoki in the teaching of Lim modified by Murade to be able to have a display driver using a scan line drive means be able to display vertically inverted image on display panel.

Regarding Claim 8, Lim modified by Murade fails to specifically recite or disclosed an image produced by supplying the first control signal is inverted.

However, Aoki teaches an image produced by supplying the first control signal is inverted (Col. 1, Line 65 to Col. 2, Line 6).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Aoki in the teaching of Lim modified by Murade to be able to have a display driver using a scan line drive means be able to display vertically inverted image on display panel.

Regarding Claim 13, Lim teaches the gate lines of the image display part may be sequentially driven from the last one to the first one (page 3, paragraph 39, Lines 4-10); an image produced by supplying the first control signal (page 3, paragraph 39, Lines 13-18).

However, Lim modified by Murade fails to specifically recite or disclosed an image produced by supplying the first control signal is inverted.

However, Aoki teaches an image produced by supplying the first control signal is inverted (Col. 1, Line 65 to Col. 2, Line 6).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Aoki in the teaching of Lim modified by Murade to be able to have a display driver using a scan line drive means be able to display vertically inverted image on display panel.

Regarding Claim 15, Lim teaches the gate lines of the image display part may be sequentially driven from the last one to the first one (page 3, paragraph 39, Lines 4-10); an image produced by supplying the first control signal (page 3, paragraph 39, Lines 13-18).

However, Lim modified by Murade fails to specifically recite or disclosed an image produced by supplying the first control signal is inverted.

However, Aoki teaches an image produced by supplying the first control signal is inverted (Col. 1, Line 65 to Col. 2, Line 6).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Aoki in the teaching of Lim modified by Murade to be able to have a display driver using a scan line drive means be able to display vertically inverted image on display panel.

***Allowable Subject Matter***

6. Claims 10, 17 are allowed.

7. The following is an examiner's statement of reasons for allowance:

Applicant has amended objected claims 10 and 17 by adding limitations of independent claims 5, and 12 respectively. Claims 10 and 17 have been fully considered, searched and they do overcome prior art rejection; which puts claims 10,17 in condition for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

the prior art of Lim (US 2002/0039089 A1); Murade (US 2001/0022572 A1), Aoki (US 5,966,115) and all the cited prior arts with PG PUB fails to recite or disclose all the other limitations recited in the independent claims with the uniquely distinct features represented by underlined bold claim below;

**a first control signal line formed together with the conductive lines for supplying a first control signal to the gate driving integrated circuits so that the gate lines of the image display part may be sequentially driven from the first one to the last one; a second control**

**signal line formed together with the conductive lines for supplying a second control signal to the gate driving integrated circuits so that the gate lines of the image display part may be sequentially driven from the last one to the first one; and a first controller for supplying the first and second control signals to the first and second control signal lines and a shorting line mounted at an edge of the first substrate to electrically connect an end of the first control signal line and an end of the second control signal line extended from the last gate driving IC.**

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Response to Arguments***

10. Applicant's arguments filed 10-26-2007 have been fully considered but they are not persuasive.

11. Applicant argue the prior art of Lim (US 2002/0039089 A1) and Murade (US 2001/0022572 A1) fails to disclose "a first control signal line in the gate tape carrier packages, the first control signal line being together with the conductive lines to supply a first control signal to the gate driving integrated circuits mounted on the gate tape carrier packages so that the gate lines of the image display part may be sequentially driven from the first one to the last one" and "a second control signal line in the gate tape carrier packages, the second control signal line

being together with the conductive lines to supply a second control signal to the gate driving integrated circuits mounted on the gate tape carrier packages so that the gate lines of the image display part may be sequentially driven from the last one to the first one."

12. Examiner disagrees as Lim discloses control lines supplied to TCP or tape carrier packages (please see figure 3, page 3, paragraph 39, Lines 4-10, page 1, paragraph 16, Line1-16, page 2, paragraph 36, paragraph 34, Lines 8,9, page 4, claim 12, disclosing controller and control lines received from controller formed on the TCP controlling gate driving IC mounted on TCP, please also see patent number 7,145,539 of the PGPUB document US 2002/0039089 A1, Col. # 1, Line 62 to Col. 2, Line 67, Col. 4, Lines 1-65, Col. 3, Lines 6-36); . First and second control lines are arbitrary. The prior art of LIM further discloses sequential driving form first gate line to last gate line and last gate line to first gate line (page 3, paragraph 39, Lines 4-10, page 1, paragraph 16, Line1-16, page 2, paragraph 36, paragraph 34, Lines 8,9, page 4, claim 12, figure 3, disclosing controller and control lines received from controller formed on the TCP controlling gate driving IC mounted on TCP, please also see patent number 7,145,539 of the PGPUB document US 2002/0039089 A1, Col. # 1, Line 62 to Col. 2, Line 67, Col. 4, Lines 1-65, Col. 3, Lines 6-36).

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

15. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



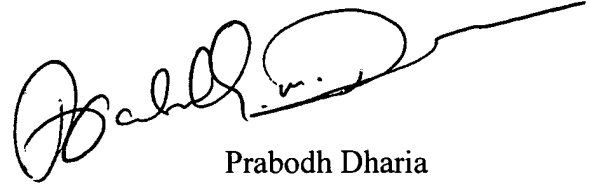
Application/Control Number:  
10/668,606  
Art Unit: 2629

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

A handwritten signature in black ink, appearing to read 'Prabodh Dharia', with a long horizontal flourish extending to the right.

Prabodh Dharia

Full Signatory Authority Program

AU2629

December 18, 2007